NATIONAL WEATHER SERVICE, LAS VEGAS NEVADA

The Desert Sun

SKYWARN Spotter Newsletter

Winter 2010/11

In This Issue

This newsletter serves the following counties:

Nevada: Clark, Lincoln, Nye, Esmeralda

Arizona: Mohave

California: Inyo, San Bernardino

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Spotter News

Andy Gorelow, Storm Spotter Coordinator

It certainly has been a hectic end to 2010 with all the rain and snow the forecast area has received. Its hard to believe that things were so dry for so many locations this past summer. As we head into a new year we will be determining when and where our spotter training classes will be held. I was hoping to have a couple of online classes this past fall, but things got so hectic with training and scheduling, it wasn't able to happen. However, I am planning on several online training classes this Spring and I will let everyone know when they occur. Over the past couple of months we have been training for upper air balloon launches and we go official on January 6. Once again, thank you all for your time and effort and I look forward to seeing you at a local spotter training class. Also, keep those pictures coming. We have seen some great shots during these past few storms.

We Need Your Help!

We need your help to find more ground observations. As an organization that relies heavily on ground truth we are looking for online weather observations. Many people own their own weather equipment and have their own website to view the data. We are looking for those sites. Does anyone know friends, family, or neighbors that have their own online weather station that is available for us to view? If you do, please send us an email with the web address.

Fog In The Mojave Desert: Just How Rare Is It?

Chris Stachelski
Forecaster

Foggy day in Searchlight in January 2008

Fog is a cloud on the ground. A more hard-core meteorological definition of fog would be water droplets suspended in the atmosphere near the earth's surface. Regardless of how you define it, fog is a hazard to travelers as it can seriously restrict visibility resulting in dangerous travel conditions by car, plane or even boat.

In order for fog to form, the atmosphere needs to be extremely moist at the lowest levels, ie near the ground. In a desert such as the Mojave this can be an extremely challenging task for nature to accomplish as moisture is typically limited and even when it increases in a more abundant amount, is typically found in the middle and upper levels of the atmosphere (at or above say 10,000 feet). In the Mojave Desert, the moisture source for fog is typically from moisture remaining on the ground dropped by storm systems that pass through during the colder season. If the lowest levels are too dry, fog will not be able to form. Even if the lowest levels of the atmosphere are moist, fog still may not form. Typically winds will need to be less than 5 mph as stronger winds will stir up the atmosphere's lowest levels enough to inhibit fog from forming.

In the Mojave Desert, fog is more common along the sides of mountains and especially in mountain passes, as the atmosphere saturates near the surface in these areas more easily. In the lower elevations fog is much more uncommon as getting the atmosphere to saturate right near the surface is a lot more challenging. A closer look at McCarran International Airport in Las Vegas shows that dense fog, which is considered ¼ or less visibility, occurs an average of one day every two years. However, a closer inspection of a thirty year period of records from 1979-2009 shows a wide variation in the occurrence of dense fog at McCarran. In 1983, 1992 and 1993 there were three days in each of those years where dense fog occurred while from 1994-1997 and again from 2000-2004 there were no days with any dense fog reported at McCarran.

Although many people are often concerned about driving during wet weather such as heavy rain, thunderstorms, ice and snow, fog can be just as – if not more – serious. It can show up in one place and not another. And worst of all, it commonly occurs at night when visibility is naturally lower due to the absence of sunlight. This results in a reduced ability to see and thus less reaction time. Driving a vehicle or even a boat or taking off in a plane becomes difficult if not impossible.

Fog in North Las Vegas, January 2010.

Dense Fog Driving Safety Tips:

When the visibility gets low, it's time to drive slow! Slow down! Allow extra stopping distance in between you and the vehicle in front of you.

Use low beams. High beams only reflect back off the fog and make visibility even worse.

Avoid crossing traffic. If you need to, stop and listen for traffic. Roll your windows down if needed.

Use windshield wipers and defrosters to help maximize your vision.

Unless needed, avoid stopping on any freeway or heavily traveled road. If you need to stop, find a safe area on the shoulder or as far away from traffic as possible to avoid injury.

Be patient! Don't pass long lines of traffic in fog.

If visibilities drop to the point you can no longer proceed, pull over and find a safe place to wait until conditions improve.

Consider postponing your trip until visibility improves, especially if it is non-essential.

Storm Spotter Photo Page

I would like to thank all the Spotters who sent in pictures over the past few months. Please make sure to include permission for us to use them. Thanks again for all your efforts and we enjoy receiving your photos.

Beaver Dam, AZ Flooding - Courtesy of ADEM

Lenwood Bridge Washout - Courtesy of John Fertsch

Heavy Snow in Aspendell, CA - Courtesy of Jo Ann Schneider

Runoff near Lake Las Vegas - Courtesy of James Harrison/NWS

Climate Capsule: The Snowstorms of January 1974

Chris Stachelski
Forecaster

New Year's Day 1974 brought 4.4 inches of snow to McCarran International Airport covering cars at the airport (left) and whitening lawns elsewhere in Las Vegas (right). Photos courtesy UNLV Special Collections.

Most people who come to Las Vegas have visions of sunshine, palm trees and hot temperatures, but contrary to common myth Las Vegas does get its' taste of winter. Although snow flurries in the Las Vegas Valley occur each winter, measurable snowfall – meaning an amount of snow that can be measured with a ruler – only occurs once on average every four to five years. However, in January 1974 measurable snow fell not once but twice!

On New Year's Day a cold upper level low dropped southward over the Southwestern United States and passed right over southern Nevada. Although the air mass was not incredibly moist this low had a lot of energy to work with along with very cold air that resulted in precipitation rapidly changing over from rain to snow. Observations from McCarran Airport reported visibility as low as ¼ mile in heavy snow for nearly an hour from 7 AM to 8 AM PST. Although Las Vegas was nowhere nearly as popular of a New Year's destination then as it is now, the snow was enough to cause a large number of accidents across the Valley.

Bitterly cold air followed the New Year's Day snowstorm in Las Vegas and 3 days later as the next upper low swung down the coast of California on January 4th. This next system then eventually moved northeast towards the Great Basin. Coming on the heels of two consecutive days with temperatures entirely at or below freezing in Las Vegas, it was easy for the precipitation that spread into the valley to fall as all snow from the afternoon of the 4th into the morning of the 5th. Surprisingly, the snow generally fell at a light rate for the majority of this event and lasted about 16 hours and totaled 9.0 inches at McCarran International Airport. This storm though produced snow at extremely low elevations with snow flurries even observed at Furnace Creek in Death Valley National Park and even Willow Beach on Lake Mead measuring 0.8 inch. Once again the main impacts were related to travel as roads were hazardous and snow covered. Over 100 people were rescued from Interstate 15 in southern Nevada and southern California because of road closures due to the snow and ice.

It is interesting to note that most big snow events in Las Vegas (those with 2 inches or more of snow falling) are often proceeded by another lesser snow event just a few days before. In January 1979, a total of 2.4 inches fell from a storm on the 28th followed by 7.5 inch snowstorm that took place from the 30th into the 31st. More recently in December 2008 a storm brought snow to western half of the Las Vegas Valley on the 15th just two days before another storm dropped snow mainly on the southern half of the valley. Thus, a predecessor storm that helps bring colder air into the region and is often responsible for the first snow while a 'zinger' storm that quickly follows brings even heavier snow once cold air is in place.

Keep Track Of The Weather With CoCoRaHS

Are you curious as to how much rain or snow fell each time a storm moves through the area? Do you have a rain gauge you frequently check for rain? If so, the National Weather Service in Las Vegas would like to encourage you to join CoCoRaHS, known as the Community Collaborative Rain, Hail and Snow Network. This network allows you to report online how much rain or snow you may have received or even if you saw any hail. Additional comments on the weather in your area that day such as strong winds or storm reports such as flooding can also be submitted. Not only is this information useful to forecasters for verifying forecasts and warnings, but CoCoRaHS also keeps an online record of your reports. This data can then be sorted to compile totals for a given site or see how frequently you received rain or snow in a given time frame. All you have to do to join is visit http://www.cocorahs.org/ and click on "Join CoCoRaHS" on the left sidebar menu and fill out a short form. While we welcome new observers in all of our communities, our office is especially interested in observers on the north side of the Las Vegas Valley, Mt. Charleston, the Laughlin-Bullhead City area, Searchlight, Beatty, anywhere in Esmeralda County, the Kingman/central Mohave County area and the Owens Valley. Please contact Faith.Borden@noaa.gov or Andy.Gorelow@noaa.gov with any questions.

Top Weather Events of 2010

1) Pacific Pounding - (January 17-23)

A series of four back-to back storm systems pounded the area in rapid succession producing significant precipitation totals area wide. In Las Vegas a total of 1.70 inches of rain fell which surpassed the 1.59 inches that fell during all of 2009. A storm total of 7.44 inches fell in the community of Morongo Valley. Between 3 and 5 feet of snow fell in the eastern slopes of the southern Sierra and the Spring Mountains. There was widespread flooding of streets and low lying areas and numerous roads were washed out. This intense storm system produced thunderstorms over the Colorado River Valley and helped produce a wind gust of 101 mph in Kingman.

2) High Wind Event - (April 27-28)

Strong winds around 60 mph blew across much of the region with two semi trucks being blown over in the Owens Valley. Elsewhere a measured wind gust of 63 mph was recorded in Las Vegas which was the second highest wind gust ever recorded in April. Numerous trees were blown over, a small plane was flipped at the North Las Vegas airport, and a carport was destroyed at a condominium complex.

3) Meadview Thunderstorm / Flash Flooding - (August 17)

During the afternoon a severe thunderstorm developed right over the community of Meadview producing 2.76 inches of rain in an hour. The tremendous downpour resulted in flash flooding with water up to two and a half feet deep flowing across roads and into neighborhoods.

4) Strong Upper Lows in October - (October 3-6)

Although two separate events these two lows both resulted in an extremely wet month during what is typically one of the quieter months. More rain fell in Las Vegas during the event than all of the monsoon season, which runs from July 15 to September 15. Both of these lows triggered severe thunderstorms and flash flooding. On October 4th one storm produced heavy rain near Callville Bay on Lake Mead producing a 10 foot wall of water that caused damages of at least one million dollars. The second system produced an EF0 tornado in Kingman and two severe thunderstorms in Barstow producing quarter size hail.

5) Deep December Low and Moist Flow - (December 17-23)

Low pressure that remained nearly stationary for a week off the southern California coast produced significant amounts of precipitation for much of the region. As much as 14 inches of precipitation fall in the highest elevations with tremendous snowfall that crippled mountain communities in the eastern Sierra and the Spring Mountains. A whopping 96 inches of snow fell at the Las Vegas Ski and Snowboard Resort while Aspendell measured 88 inches. The heavy snow snapped trees and caused extensive power outages. Extensive flooding took place in the Valley of Fire State Park resulting in the parks closure for two days and several roads were flooded by up to 3 feet of water in the Morongo Basin. In California, the Mojave River rose in Barstow and Yermo resulting in flooding. The most dramatic event took place in Beaver Dam Arizona where the Beaver Dam Wash swelled and undercut homes destroying 6 and carrying one home 200 yards down river.

Winter Weather Double Puzzle

Unscramble each of the clue words.

Take the letters that appear in ◯ boxes and unscramble them for the final message.

Answer Key on Next Page

BILZADZR

SECICIL

MASNOWN

BERMECDE

PILCREFAE

LEHVOS

SBTOO

SGNIIK

IODALSYH

NEFOZR

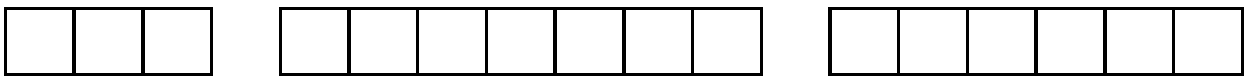
SOBLALWN

SFRAC

SAOLFNWL

DESL

VEGSOL



Winter Double Puzzle Answer Key

BLIZZARD

ICICLES

SNOWMAN

DECEMBER

FIREPLACE

SHOVEL

BOOTS

SKIING

HOLIDAYS

FROZEN

SNOWBALL

SCARF

SNOWFALL

SLED

GLOVES

FINAL MESSAGE = ICE SKATING ARENAS